Washington BioHistory™

1850

1861 — University of Washington founded.
Since 1969, the University of Washington (UW) has ranked among the top five institutions in the nation in receipt of federal awards, and since 1974, it has been the number one public university in America receiving federal research and training monies. The UW is the technology foundation of numerous biotechnology and medical device companies in Washington State.

1865 — Gregor Mendel, the father of modern genetics, presents his laws of heredity.
"In 1859 I obtained a very fertile descendant with large, tasty seeds from a first generation hybrid. Since in the following year, its progeny retained the desirable characteristics and were uniform, the variety was cultivated in our vegetable garden, and many plants were raised every year up to 1865." *(Gregor Mendel to Carl Nägeli, April 1867).*

1890 — Washington State University founded.
Washington State University (WSU), a state Land-Grant College, is one of the nation's leading agricultural research universities offering research programs in agriculture and veterinary medicine that have received national recognition. WSU offers extensive programs in biochemistry, molecular science, environmental science and engineering, and wood materials engineering.

1940

1921 — Hollister-Stier founded.
Hollister-Stier, located in Spokane, is the oldest name in allergy science. The company founded by chemist Guy Hollister and Robert E. Stier, M.D. is now a world leader in the manufacturer of allergenic immunotherapy products and devices, and a nationally recognized contract manufacturer of sterile injectable pharmaceuticals and biotechnology products.

1941 - 1983 — Federal revenues flow into Washington under leadership of Jackson and Magnuson.
Senators Henry "Scoop" Jackson and Warren G. Magnuson, nicknamed the Gold Dust Twins for their ability to attract federal money, represented Washington in the U.S. Congress for more than forty years and during that period, their rise to seniority leadership resulted in a growing stream of federal dollars into Washington State. *(Photos: courtesy U.S. Senate Historical Office).*

1947 — Transistor invented.
The transistor, the invention that marked the dawn of the information age, was invented by John Bardeen, William Shockley and Walter Brattain at AT&T's Bell Laboratories. They were awarded the 1956 Nobel Prize in Physics for their discovery of the transistor effect. Brattain received his B.S. degree from Whitman College in Walla Walla, WA and a M.A. degree from the University of Oregon. *(Photos: © The Nobel Foundation)*

1950

1952 — Pacific Northwest Research Foundation founded.
The Pacific Northwest Research Foundation, now Pacific Northwest Research Institute (PNRI), was founded by Dr. William Hutchinson. PNRI was among the first private non-profit biomedical and clinical research institutes in the Northwest, and helped establish the Fred Hutchinson Cancer Research Center in 1972. Today, PNRI conducts pioneering research into the mechanisms of disease. Its work in cell biology, genetics, and immunology is focused on preventing and curing diabetes and cancer.

1952 — Virginia Mason Research Center founded.
The Virginia Mason Research Center, now known as Benoroya Research Institute (BRI), is focused on molecular and cellular biology of the human immune system and on genetics of human diseases. BRI has a clinical research program that supports more than 150 studies each year, primarily Phase II-III medication and device trials, in 25 different subspecialty areas.

1953 — DNA Double helix structure revealed.
The double helix structure of DNA, the hereditary molecule revealed by Francis Crick and James Watson, who shared the 1962 Nobel Prize for Physiology and Medicine with Maurice Wilkins. Rosalind Franklin, whose work contributed to the discovery, died before this date and the rules do not allow a Nobel Prize to be awarded posthumously. *(Photos: © The Nobel Foundation)*

1960

1961 — President John Kennedy expands space program
President John F. Kennedy launched the space program with the goal of a man on the moon by the end of the decade. The U.S. Space Program has resulted in the development of a wide range of technology with enormous benefit to human kind. *(Photo: courtesy of the National Aeronautics & Space Administration)*

1965 — Pacific Northwest National Laboratory founded.
Pacific Northwest National Laboratory (PNNL) was created in 1965 when the U.S. Department of Energy awarded Battelle a contract to perform R&D at Hanford, a nuclear site in southeastern Washington State. Today, PNNL's core mission is to deliver environmental science and technology in the service of the nation and humanity. Hanford, began in 1943 as the plutonium production site for the Manhattan Project.

1969 — Man walks on the moon.
Neil Armstrong and Buzz Aldrin, American astronauts, made history by becoming the first men to walk on the moon. An important benefit of NASA programs is the ever-growing pipeline of technology that improves human and veterinary healthcare diagnostics and therapeutics: *(Photo: courtesy of the National Aeronautics & Space Administration)*

1970

1972 — Fred Hutchinson Cancer Research Center founded.
The "Hutch," one of the comprehensive cancer centers nationwide, was established through the efforts of Dr. William Hutchinson, brother of baseball hero Fred Hutchinson, and Washington state's legendary U.S. Senator Warren Magnuson. The Hutchinson Center is the technology foundation of many biotechnology companies in Washington State.

1973 — Recombinant DNA perfected.
The modern era of biotechnology began when Stanley Cohen of Stanford University and Herbert Boyer of the University of California at San Francisco successfully recombined ends of bacterial DNA after splicing a toad gene in between. The 1986 Nobel Laureate in Medicine was jointly awarded to Stanley Cohen and Rita Levi-Montalcini, an Italian developmental biologist, for their discoveries of "growth factors". *(Photos: © The Nobel Foundation)*

1975 — Monoclonal antibodies produced.
Georges Köhler and César Milstein showed how monoclonal antibodies could be generated by isolating individual fused myeloma cells. The 1984 Nobel Laureate in Medicine was awarded jointly to Köhler, Milstein and Niels Jerne for theories concerning the specificity in development and control of the immune system and the production of monoclonal antibodies. *(Photos: © The Nobel Foundation)*

1980

1977 — First human gene cloned.
The 1980 Nobel Laureate in Chemistry was awarded jointly to Walter Gilbert and Frederick Sanger for "for their contributions concerning the determination of base sequences in nucleic acids, and to Paul Berg for his fundamental studies of the biochemistry of nucleic acids, with particular regard to recombinant-DNA. *(Photos: © The Nobel Foundation)*

1980 — U.S. Supreme Court ruled man-made organism patentable.
In 1972, Chakrabarty, a microbiologist, filed a patent application, assigned to General Electric Co. for a human-made genetically engineered bacterium capable of breaking down components of crude oil. In 1980, Diamond v. Chakrabarty, the U.S. Supreme Court upheld five-to-four the patentability of genetically altered organisms, opening the door to patent protection for modified life forms.

1980 — Bayh-Dole Act provides for university technology transfer.
This Act, introduced by senators Birch Bayh (Indiana) and Robert Dole (Kansas), provided for legal transfer of research and technology from U.S. universities and federal laboratories to private companies for commercialization. *(Photos: courtesy U.S. Senate Historical Office)*

1981 — Immunex Corporation established.
Immunex Corporation, the largest biotechnology company in the Pacific Northwest, was founded by Steven Gillis and Christopher Henney, from the Hutchinson Cancer Research Center and Stephen Duzan. The company, dedicated to improving lives through immune system science innovation, was acquired by Amgen in July 2002. *(Photos: Steven Gillis, courtesy of Corixa Corporation, and Christopher Henney, courtesy of Dendreon Corporation)*

1986 — Microsoft Corporation Initial Public Offering.
Microsoft Corporation, founded by Bill Gates Jr. and Paul Allen in 1975, and headquartered in Redmond, WA, has had a significant impact on the state's economy. The state's biotechnology industry has been a major beneficiary of Gates, Allen and other Microsoft employee investments. The Bill and Melinda Gates Foundation is a major funder of global health programs.

1989 — Washington Biotechnology & Biomedical Association founded.
The Washington Biotechnology & Biomedical Association (WBBA), a non-profit trade organization, was founded to enhance the quality of life by promoting the growth and understanding of the biotechnology and medical technology industries within Washington State.

1990

1990 — Human Genome Project established.
The U.S. Human Genome Project, a 13-year effort coordinated by the U.S. Department of Energy and the National Institutes of Health to map the human genome was established. The project was planned to last 15 years.

1990 — E. Donnall Thomas, awarded Nobel Laureate in Medicine.
E. Donnall Thomas from the Fred Hutchinson Cancer Research Center was awarded the 1990 Nobel Prize for Medicine for discoveries concerning organ and cell transplantation in the treatment of human disease. *(Photo: courtesy of Fred Hutchinson Cancer Research Center)*

1991 — Leroy Hood recruited to University of Washington.
The University of Washington announced a $12 million gift from Microsoft co-founder Bill Gates to recruit Leroy Hood to Seattle from Caltech. Dr. Hood, best known for developing automatic gene sequencing machines, became Chair of the new Department of Molecular Biotechnology. Dr. Hood is involved in starting numerous biotechnology companies. *(Photo: courtesy of Institute of Systems Biology)*

2000

1992 — Edmund Fischer and Edwin Krebs, awarded Nobel Laureate in Medicine.
Edmund Fischer and Edwin Krebs from the University of Washington were awarded the 1992 Nobel Prize for Medicine for their discoveries on reverse protein phosphorylation. *(Photos: © The Nobel Foundation)*

2001 — Leland Hartwell, awarded Nobel Laureate in Medicine.
Leland Hartwell from the Fred Hutchinson Cancer Research Center was awarded the 2001 Nobel Prize for Medicine for discoveries of key regulators of the cell cycle. *(Photo: courtesy of Fred Hutchinson Cancer Research Center)*

2001 — Human Genome Project draft sequence published.
The February 16 issue of Science and February 15 issue of Nature contained the working draft of the human genome sequence. Nature papers included initial analysis of the descriptions of the sequence generated by the publicly sponsored Human Genome Project, while Science publications focused on the draft sequence reported by the private company, Celera Genomics.

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